

**Patent Claims:**

1. A modified hirudin molecule being substantially non-immunogenic or less immunogenic than non-modified wild-type hirudin having essentially the same biological specificity and activity when used in vivo, comprising amino acid residues substitutions compared with the non-modified parental molecule, which cause a reduction or an elimination of one or more of T-cell epitopes acting in the parental non-modified molecule as MHC class II binding ligands and stimulating T-cells, said modified hirudin molecule has the (M):

V V Y T D C T E S G Q N X<sup>1</sup> C X<sup>2</sup> C E G S V X<sup>3</sup> C G Q G N K C X<sup>4</sup> X<sup>5</sup> G S D G E K N Q C X<sup>6</sup> T G E G  
T P X<sup>7</sup> X<sup>8</sup> E S H N X<sup>9</sup> G D X<sup>10</sup> E E I P E E Y L Q

wherein;

X<sup>1</sup> = T or L

X<sup>2</sup> = T or A or H or Q or T or L;

X<sup>3</sup> = A or G or H or K or N or P or Q or R or V;

X<sup>4</sup> = A or D or E or G or H or K or N or Q or R or S or T or I;

X<sup>5</sup> = A or D or E or G or H or K or N or P or Q or R or S or T or L;

X<sup>6</sup> = A or T or V;

X<sup>7</sup> = T or K;

X<sup>8</sup> = A or T or P;

X<sup>9</sup> = E or N or R or D;

X<sup>10</sup> = H or F

and whereby the wild-type sequence (X<sup>1</sup> = L, X<sup>2</sup> = L, X<sup>3</sup> = V, X<sup>4</sup> = I, X<sup>5</sup> = L, X<sup>6</sup> = V, X<sup>7</sup> = K, X<sup>8</sup> = P, X<sup>9</sup> = D and X<sup>10</sup> = F) is excluded.

2. A modified hirudin molecule according to claim 1, wherein

X<sup>1</sup> = L,

X<sup>2</sup> = L,

X<sup>3</sup> = V,

X<sup>4</sup> = A or D or E or G or H or K or N or Q or R or S or T or I;

X<sup>5</sup> = A or D or E or G or H or K or N or P or Q or R or S or T or L;

X<sup>6</sup> = A or T or V;

X<sup>7</sup> = T or K;

X<sup>8</sup> = A or T or P;

X<sup>9</sup> = E or N or R or D; and

X<sup>10</sup> = H or F.

3. A modified hirudin molecule according to claim 2, wherein

$X^6 = V$ ;

$X^7 = K$ ;

$X^8 = P$ ;

5  $X^9 = D$ ; and

$X^{10} = F$ .

4. A modified hirudin molecule according to claim 3, wherein

$X4 = A$  or  $R$ , and

10  $X5 = A$  or  $H$ .

5. A modified hirudin molecule according to claim 4 having the sequence M1 of Table A.

6. A modified hirudin molecule according to claim 4 having the sequence M2 of Table A.

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7. A modified hirudin molecule according to claim 1 having a sequence selected from the group consisting of M1 – M 81 as specified in Table A.

8. A pharmaceutical composition comprising a modified hirudin molecule of any of the  
20 claims 1 – 7, optionally together with a pharmaceutically acceptable carrier diluent or excipient.

9. A peptide molecule having the sequence

CILGSDGEKNQCVTGEGTPKPESHNDGDFE (A)

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or a sequence track consisting of at least 9 consecutive amino acid residues of any of said peptide molecules having a potential MHC class II binding activity and created from the primary sequence of non-modified hirudin, whereby said peptide molecule or sequence track has a stimulation index of  $> 1.8$  in a biological assay of cellular proliferation and said index is taken as the value of cellular proliferation scored following stimulation by a  
30 peptide and divided by the value of cellular proliferation scored in control cells not in receipt peptide.

10. Use of a peptide molecule according to claim 8 for the manufacture of a modified hirudin molecule having a modified immunogenicity in a patient.